

**ORDER NO.**  
**CRT 1061**

# GM-203

US

# GM-201

EW

# GM-123

US, CA, ES

# GM-121

EW

Maximam power output (GM-203, GM-201) . 100 W + 100 W  
 (EIAJ)  
 Maximam power output (GM-123, GM-121) 60 W + 60 W (EIAJ)  
 Load impedance . . . . . 4Ω (4~8Ω allowable)  
 Frequency response . . . . . 10~70,000 Hz ± (±3 dB)  
 Singnal-to-noise ratio (GM-203, GM-201) 97—107 dB (IHF—A net-  
 work, at 1 W)  
 Signal-to-noise ratio (GM-123, GM-121) 95—104 dB (IHF—A net-  
 work, at 1 W)  
 Distortion . . . . . 0.02% (at 20 W, 1 kHz)  
 Input level (GM-201, GM-121) . . . . . 70—250 mV/20 kΩ  
 Input level (GM-203, GM-123) . . . . . COMPO: 70—250 mV/20 kΩ  
 LINE IN: 200—700 mV/10 kΩ  
 BOOSTER: 3—10 V/1 kΩ

Specifications and the design are subject to possible modification without notice due to improvements.

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## 1. PARTS LOCATION

### NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.  
★ ★: GENERALLY MOVES FASTER THAN ★.  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The photo shows the model GM-201.

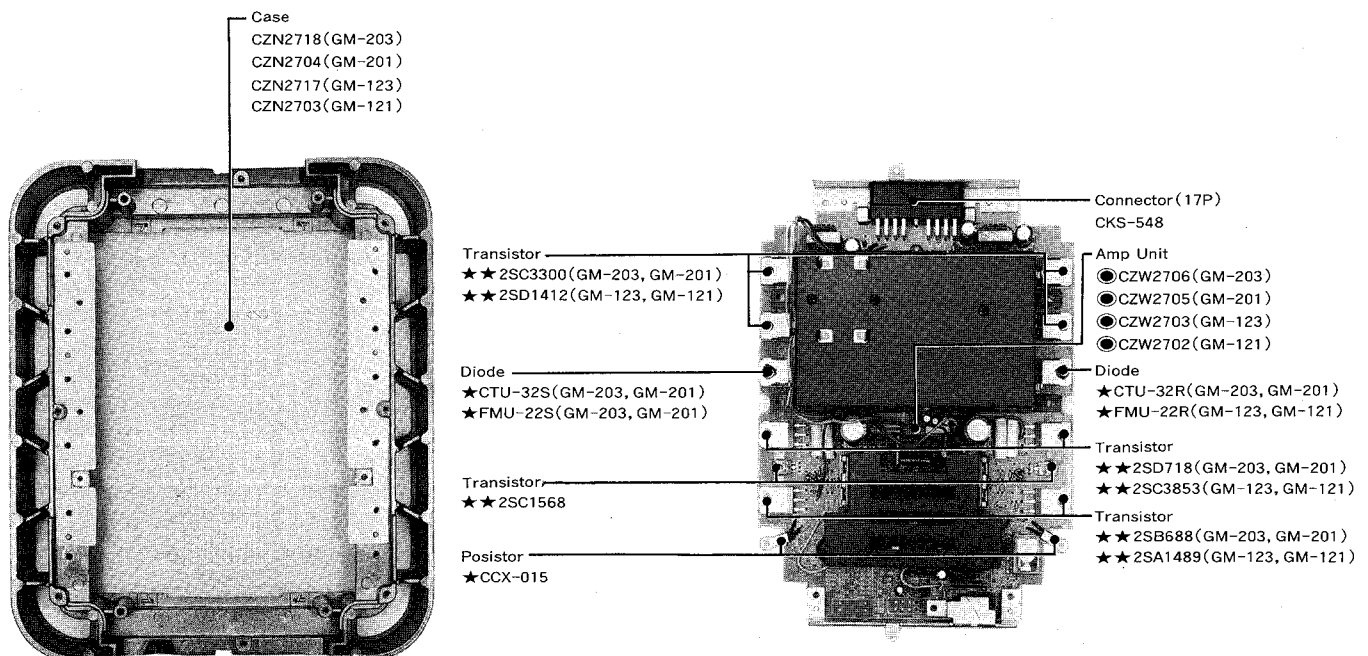


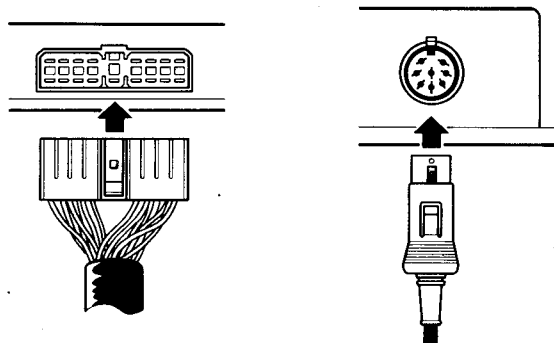
Fig. 1

## 2. CONNECTION

### GM-201, GM121

- Test-connect all components before securing them into place. Test-operate your entire car stereo system to ensure that there are no faulty wiring connections between this unit and the rest of your car stereo system.
- The speakers used in conjunction with this unit should be of a high-power capacity type capable of accepting up to a maximum input of \*100W. Their impedance should be between 4 ohms and 8 ohms. Using Speakers with different impedance ratings or whose power handling capabilities fall short of the above figure can result in terminal damage to the speakers.
- For detailed information concerning connections between different components and this unit consult their respective instruction manuals and follow those recommendations precisely.
- When wiring connecting cords into place secure them with clampers and adhesive electrician's tape. Additionally, to prevent any damage to the insulative coating of the connecting cords, protect them with adhesive electrician's tape wherever they may come into contact with any sharp edges.
- Wire all connecting cords so that they stay well clear of high-temperature areas such as the heater exhaust port.
- To ensure that all components used in combination with this unit operate properly, be sure to wire the main power supply lead (red) and the memory power supply lead (orange) correctly to the respectively determined points. Failure to do so or errors in this process will result in total inoperation.

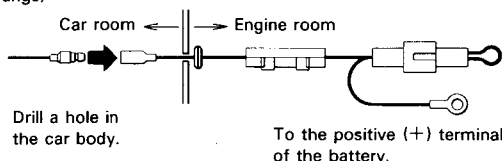
### Connections of Cords (Supplied) for Wiring



#### GM-201

- Connect the lead wire (orange) for the power supply of the memory directly to the positive (+) terminal of the battery, making sure to use the supplied power cord (orange).

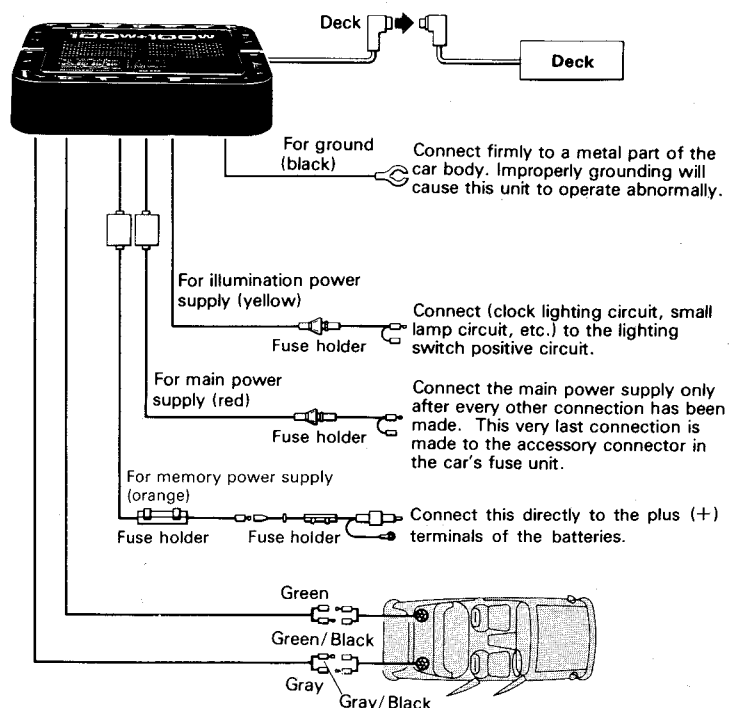
For the power supply of the memory (orange)



### GM-121

- If distance between the deck and this unit is too far to make proper connections, please buy the optional exclusive extension cord for the Component Car Stereo.
- Do not drill a hole into the engine room and connect the memory power supply lead (orange) directly to the battery. Cracks can appear in the insulation of the cable possibly leading to a dangerous short circuit.

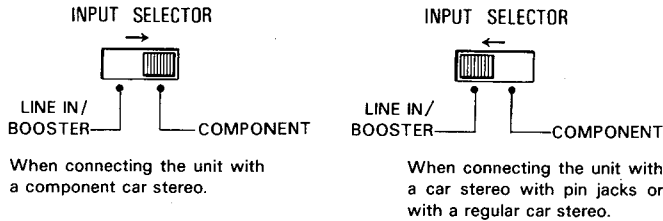
\*GM-121: 60 W



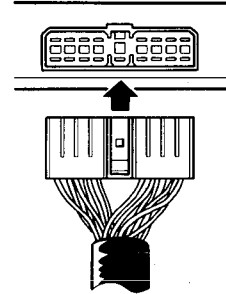
## GM-203, GM-121

### Input Selector

Be sure to set the input selector before wiring.

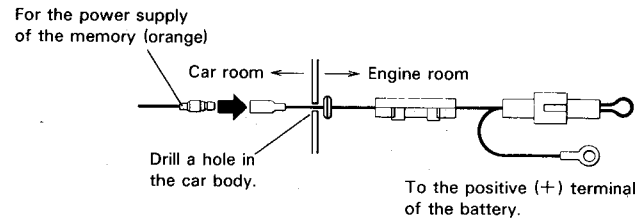


### Connections of Cords (Supplied) for Wiring



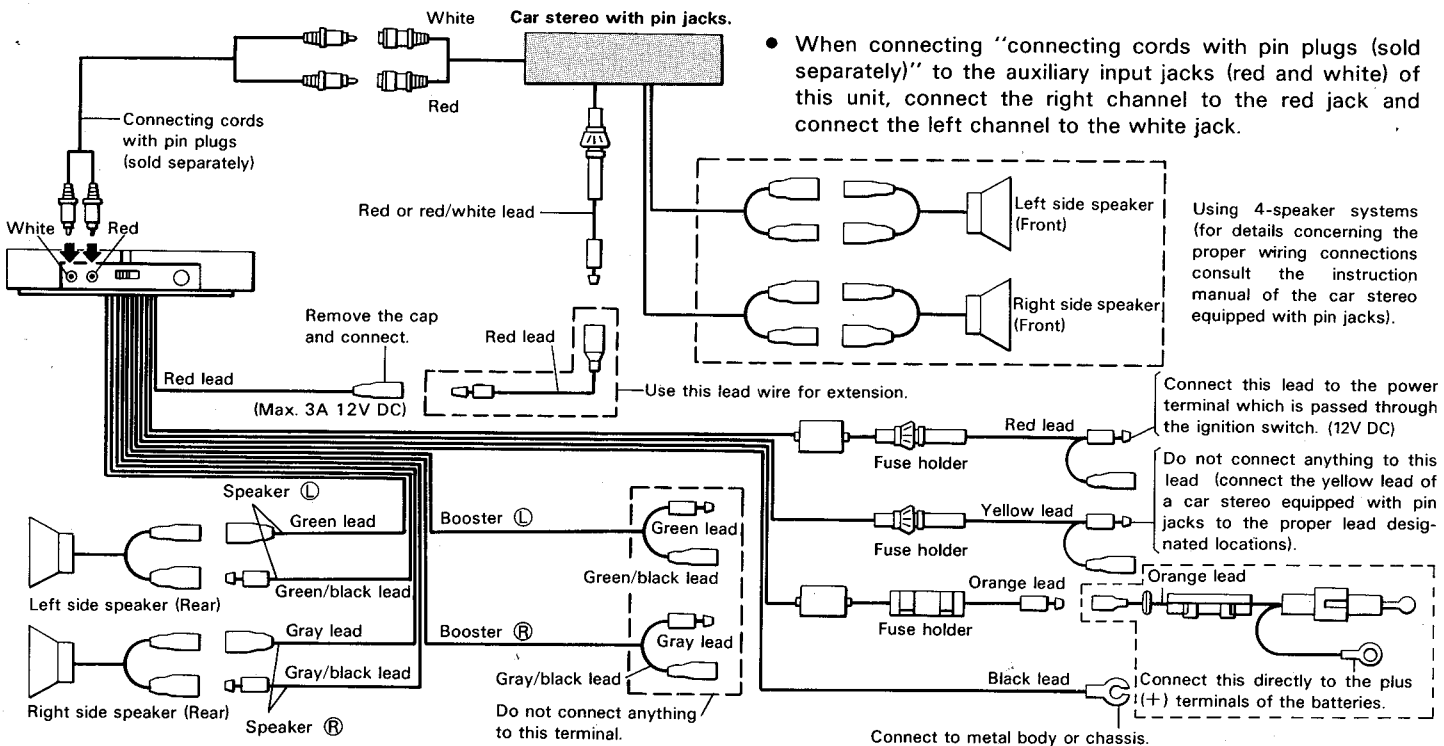
(GM-203)

- Connect the lead wire (orange) for the power supply of the memory directly to the positive (+) terminal of the battery, making sure to use the supplied power cord (orange).

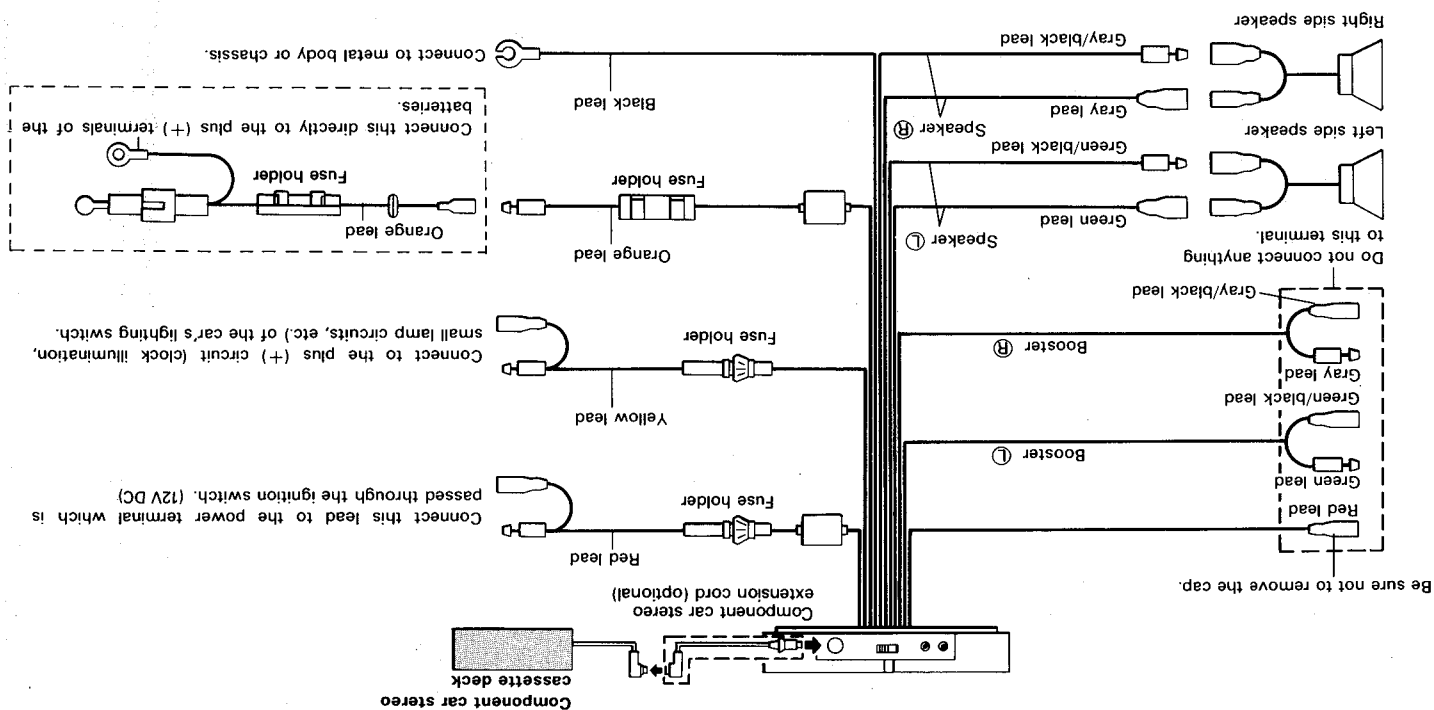


### When Combined with a Car Stereo with Pin Jacks

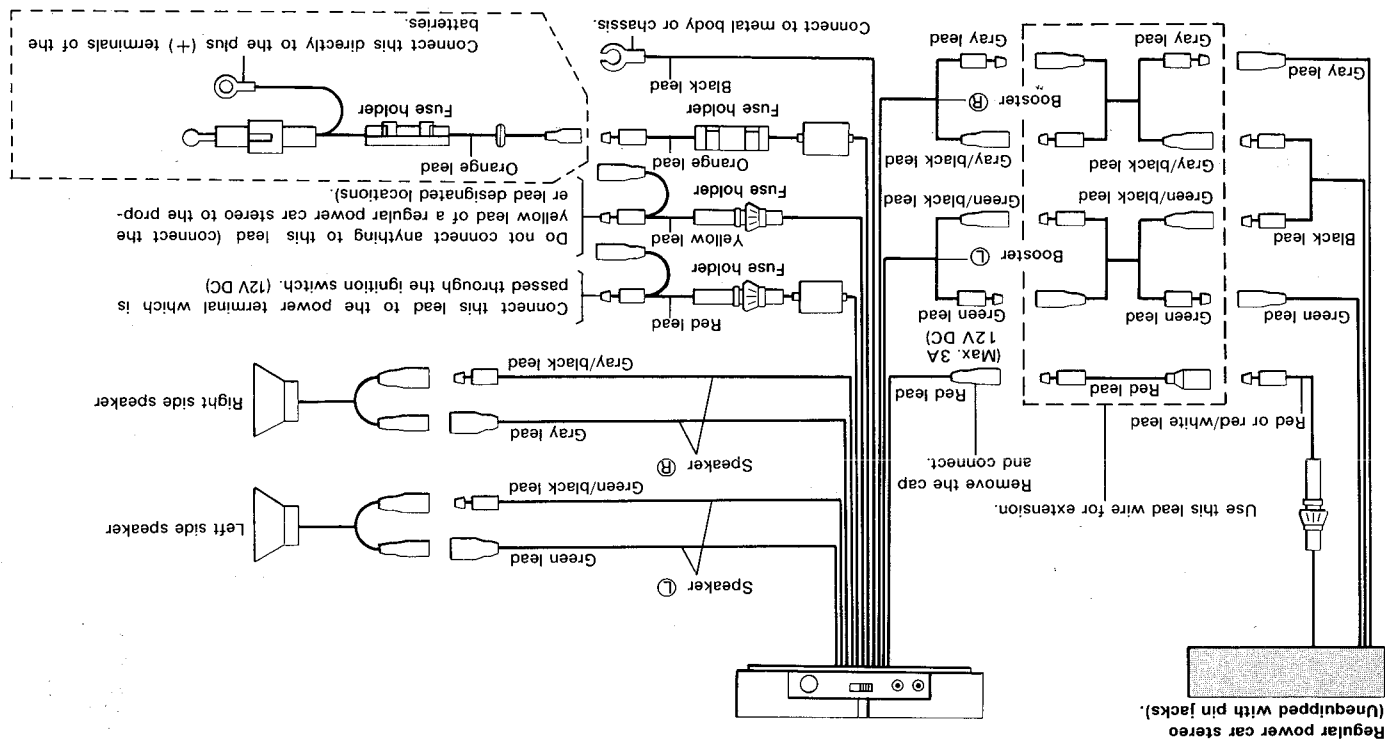
GM-203 only



## When Combined with a Component Car Stereo

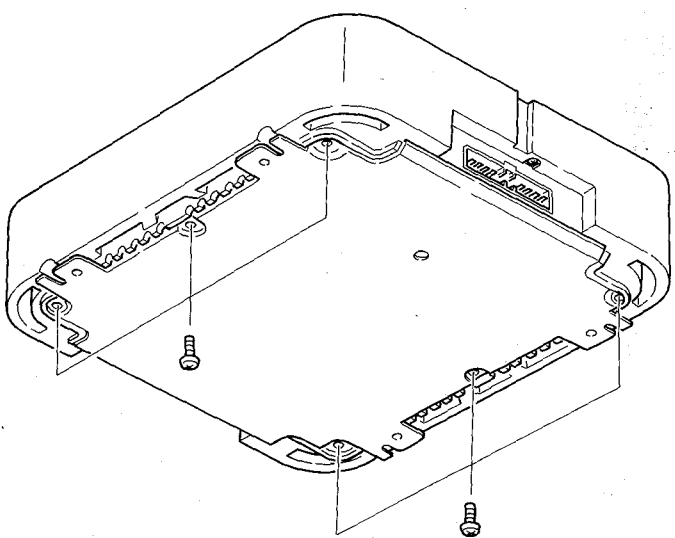


## When Combined with a Regular Car Stereo



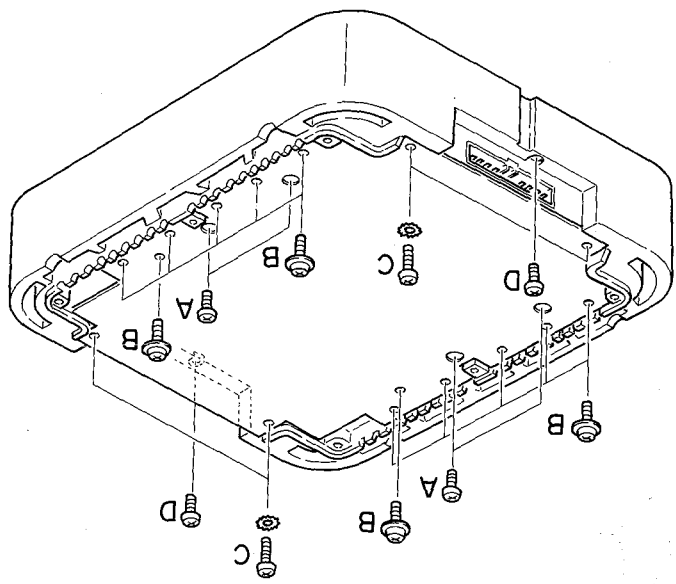
### 3. DISASSEMBLY

- Remove the Case
- 1. Remove the six screws.



### Remove the Amp Unit

- Remove the six screws labeled "A", twelve screws labeled "B", four screws labeled "C", and two screws labeled "D".



## 4. CIRCUIT DESCRIPTION

### • DC-DC Converter

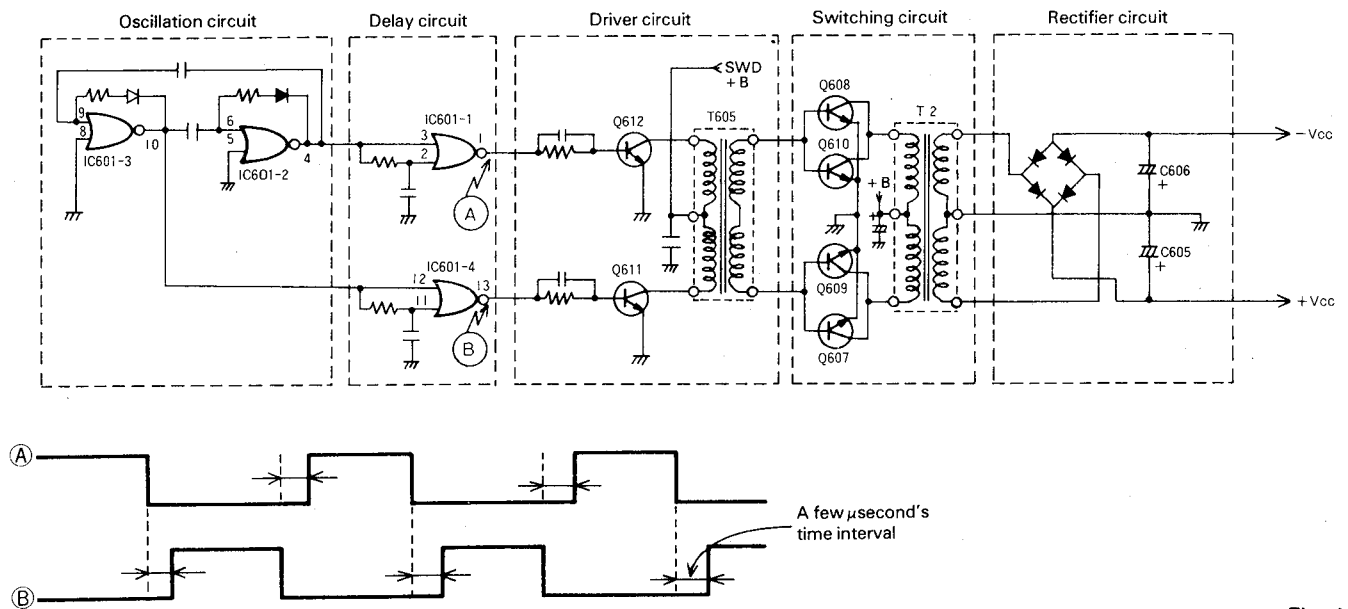


Fig. 4

To achieve its high power capability, this unit employs a high efficiency DC-DC converter to boost DC 14.4V all the way up to  $\pm V_{cc}$  (Non loaded value)

To improve the transient characteristics and the switching waveforms of the power supply, a completely separate excitation configuration was used, with the oscillation frequency set to beyond the audible hearing band (About 29 kHz).

The power supply for the power stage is supplied through the bridge rectifier formed by the high frequency rectification silicon diodes and the large capacity C605 and C606 Capacitors. Additionally, to improve the power supply regulation, our own

distinctive DC feedback circuit was incorporated to achieve a constant and stable output voltage.

The DC-DC converter circuit is composed of the oscillation circuit section, the delay circuit section, the driver circuit section, the switching circuit section, and the rectifier circuit section. The oscillation circuit and the delay circuit use a TTL IC (HD 7402P). In order to insure that the driver transistors and the switching transistors do not turn on simultaneously, the delay circuit places a time interval of a few useconds between them. (Fig. 4)

\*GM-203, GM-201 ..... 26.4 V  
GM-123, GM-121 ..... 20.7 V

## • Protection Circuit

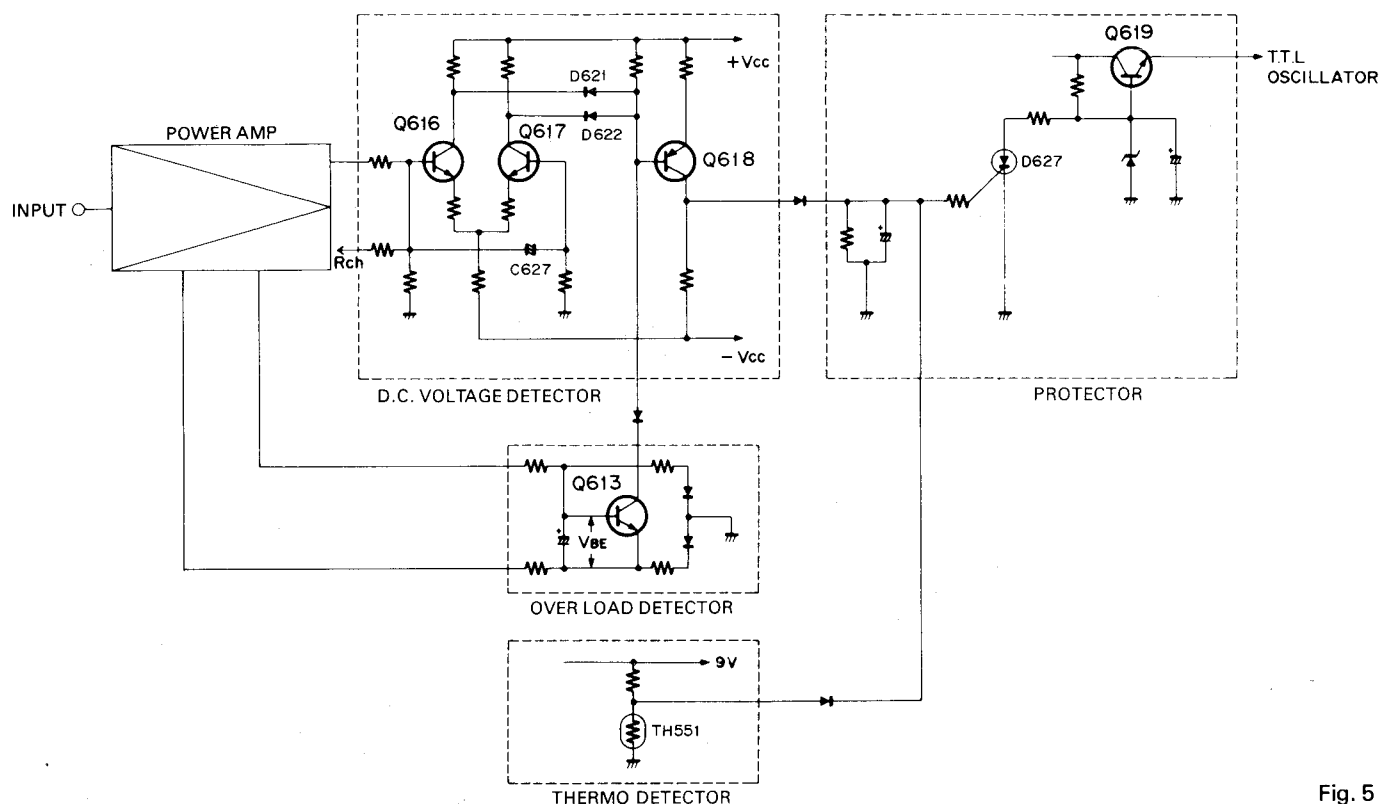


Fig. 5

The protection circuit instantly switches off the high-voltage circuits of the set to protect the final stage amplifier and speaker. The protection circuit consists of the following four parts.

### • Overload Detector Circuit

This circuit detects output terminal shortcircuits, and unduly small load resistance. It forms a bridge circuit with the load serving as one of its sides, and generates a protection signal if the bridge circuit becomes unbalanced, or if  $V_{BE}$  of Q613 voltage exceeds 0.6V.

### • DC Voltage Detector Circuit

This circuit detects the DC voltage generated at the amplifier output (center) point. The two bases are connected to each other with a capacitor, and one of the terminals is connected to the output center point. AC signals are erased at the same level, and DC voltages only are detected out of balance.

If the DC balance of the power stage is lost due to some cause, a potential difference develops between the two bases of the differential amplifier so that the collector currents of Q616 and Q617 become unbalanced, thereby energizing either of the two diodes (D621, D622). As a result, a protection signal is generated.

### • Thermo Detector Circuit

This circuit detects abnormal rise of the heat sink panels. The heat sink panel is fitted with a posistor (TH551), by which a protection signal is generated if the heat sink temperature reaches about 95°C.

### • Protector Circuit

The above-mentioned protection signals are applied to the thyristor (D627) gate by the diode OR circuit. This thyristor (D627) operates to switch off the power applied to the oscillator of the DC-DC converter and thus stops the power supply to the secondary winding of the transformer.

## • Block Diagram

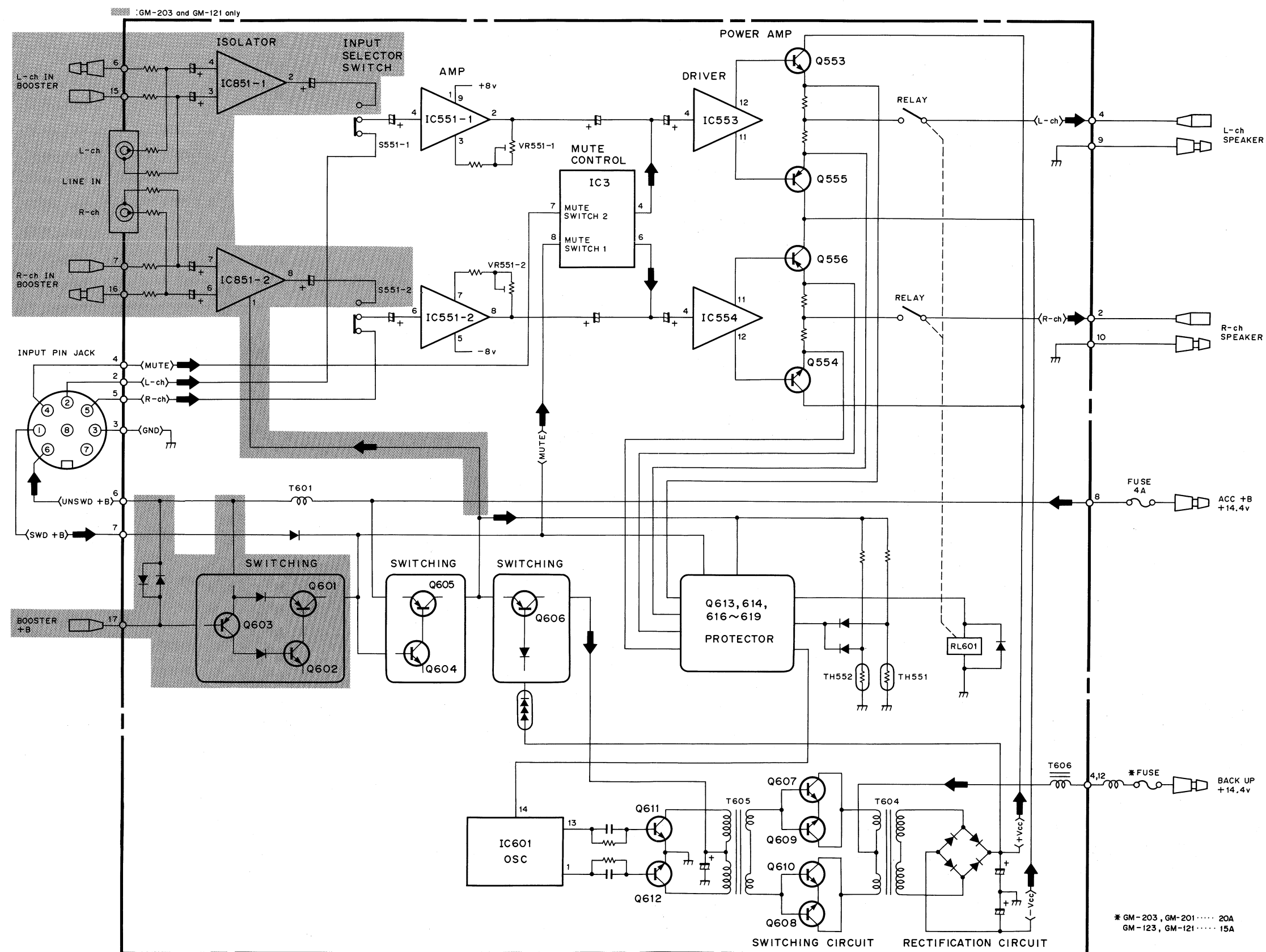
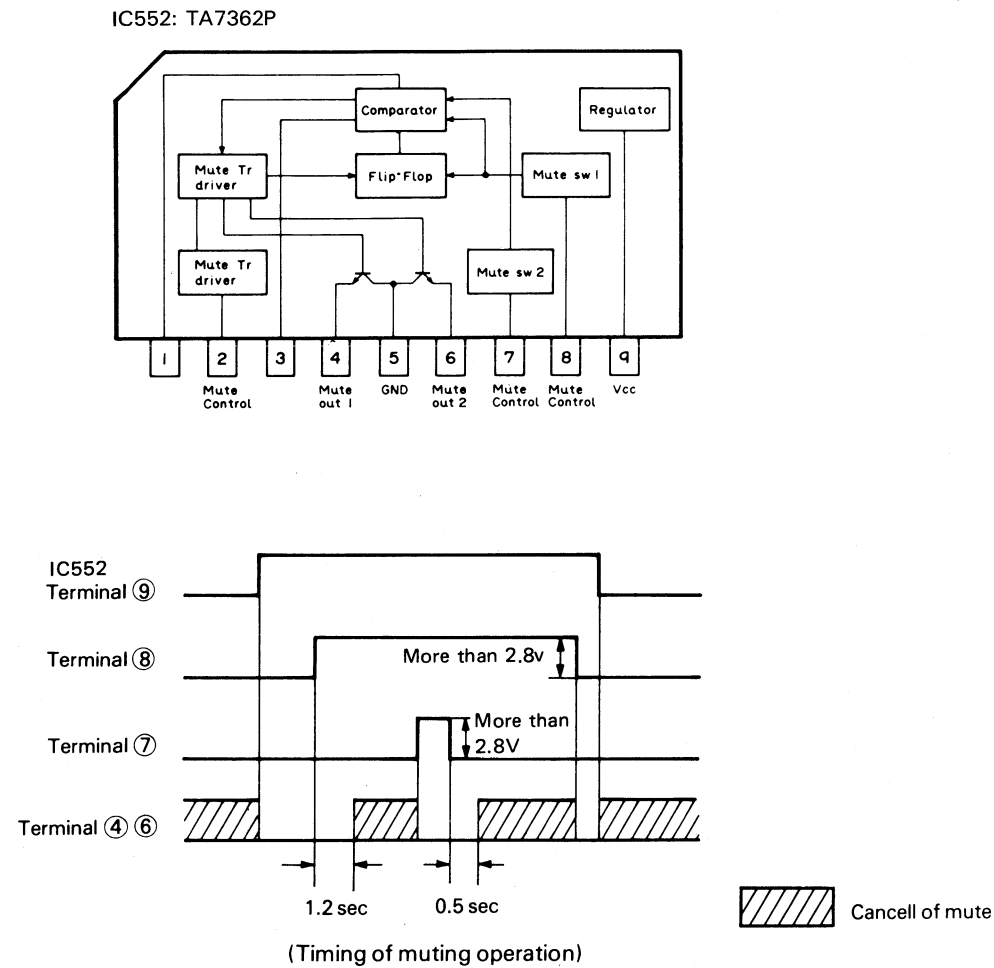


Fig. 6

• Muting Operation



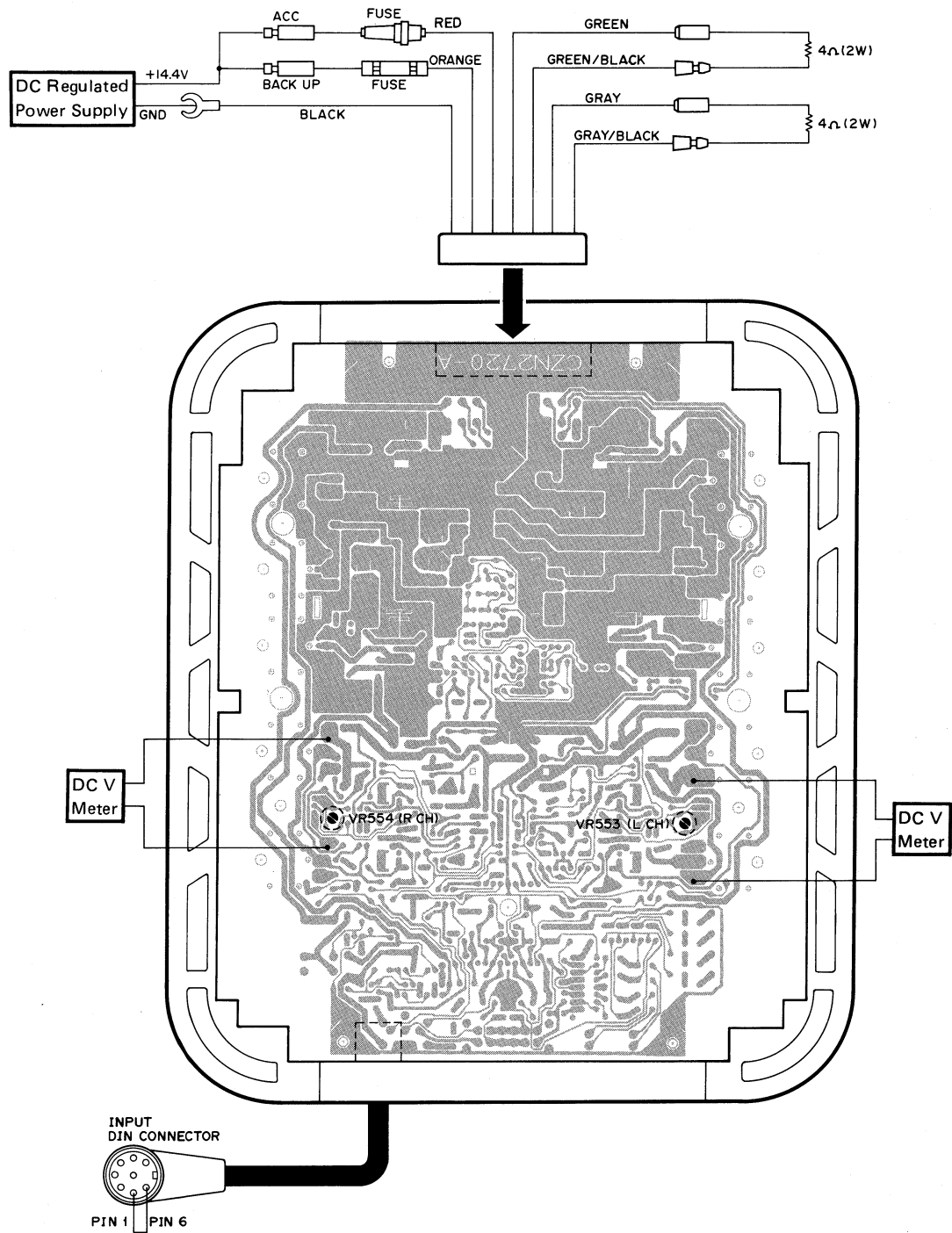
• Refer to figure 8 while reading the following description.

1. When + B is supplied to the TO BATTERY terminal, a voltage is applied to terminal ⑨ of IC552, the muting transistor inside the IC is turned on and muting is activated.
2. When power is turned on to the external set, +B is supplied to pin ① of the connector. Muting is cancelled 1.2 seconds after the voltage at terminal ⑧ of IC552 reaches 2.8V or more.
3. When a muting output is generated in the external set, a voltage is applied from pin ④ of the connector to terminal ⑦ of IC552 and muting is activated when this voltage reaches 2.8V or more. Muting is cancelled 0.5 seconds after the voltage drops below 2.8V.
4. The muting restoration time is determined by the discharge time of the capacitor placed between terminals ① and ③ of IC552.

5 ADJUSTMENT

5.1 IDLE CURRENT ADJUSTMENT.

• Connection Diagram

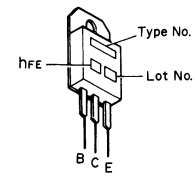


• To adjust

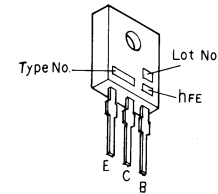
1. Adjust the VR 553 (L-ch) and VR554 (R-ch) until the DC volt meter reads 13 mV–14 mV.
2. Wait for two to three minutes, and verify that DC voltmeter reads 13 mV–14 mV.

• Ics and Transistors

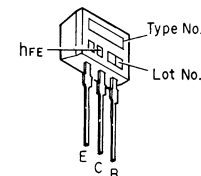
2SC3853  
2SA1489  
2SD718  
2SB688



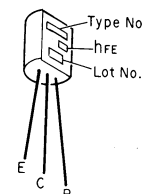
2SC1568



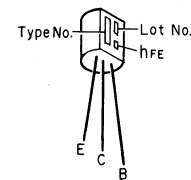
2SA1175  
2SC2785



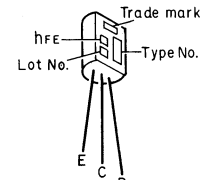
2SB647



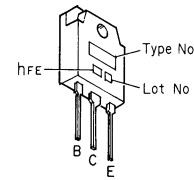
2SC2002  
2SC1815



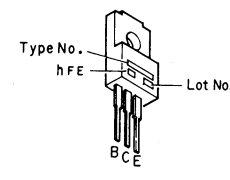
2SA683  
2SC1383



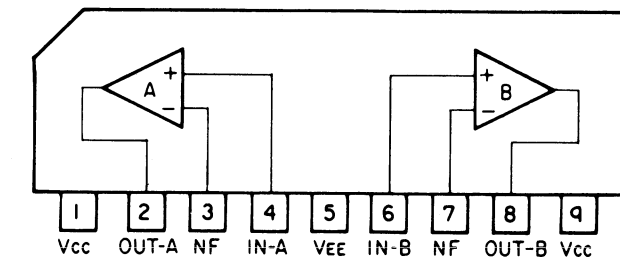
2SC3300



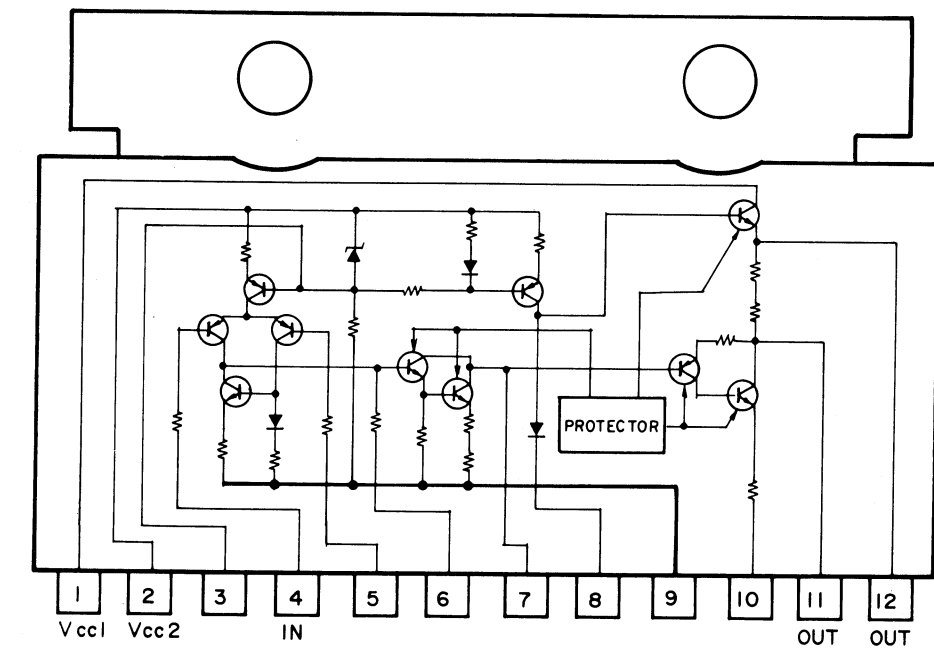
2SD1412



TA75558S

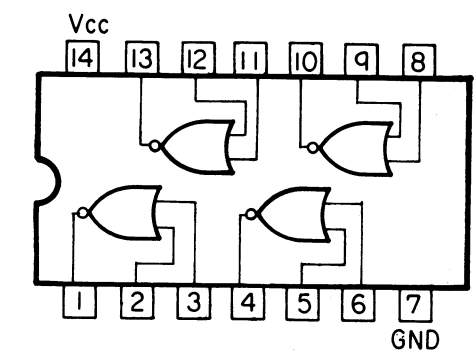


PC1225H



TA7362P (Shown in Fig. 7)

HD7402P



## 6. SCHEMATIC CIRCUIT DIAGRAM

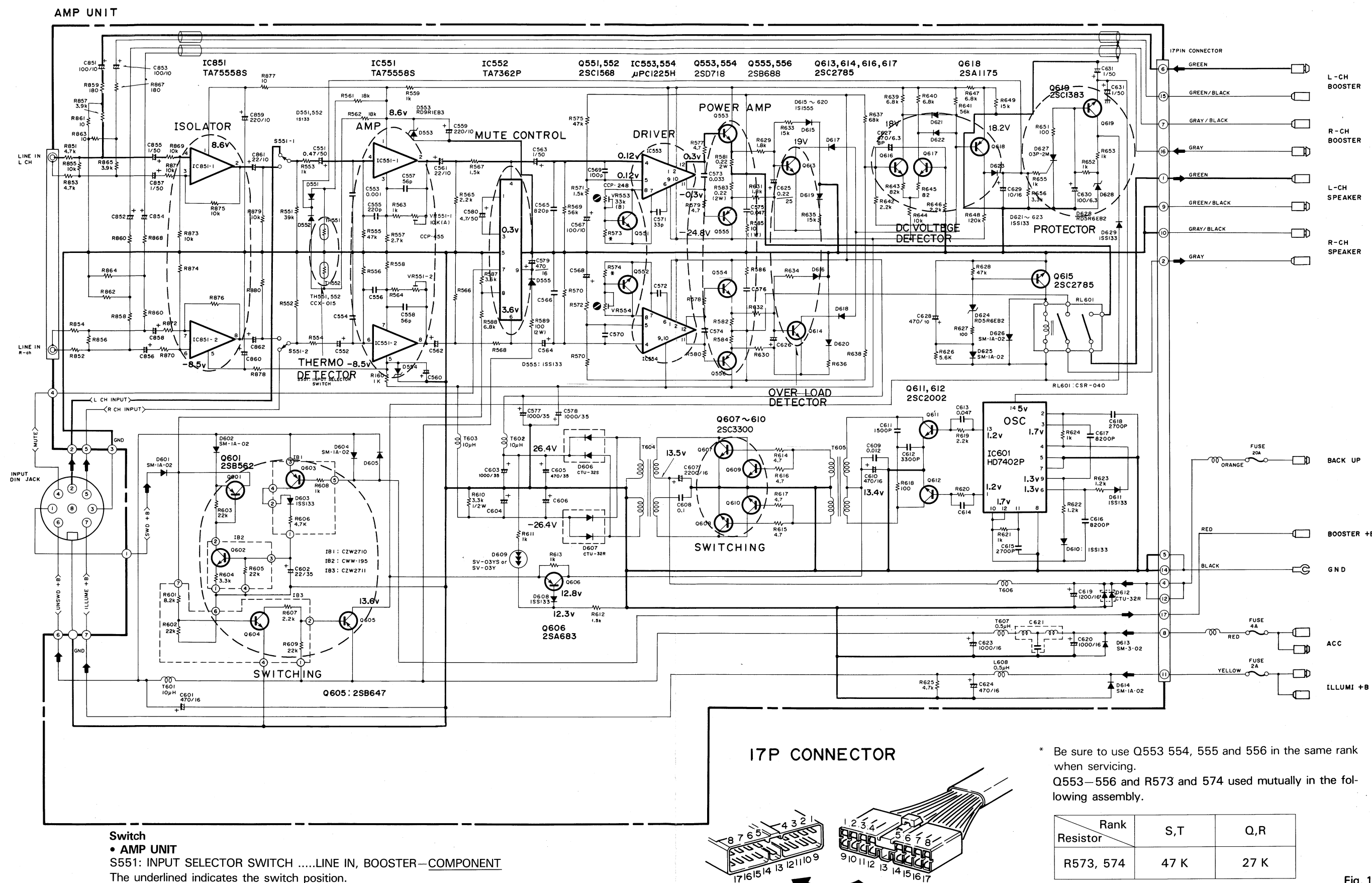


Fig. 10

## 5



17 ■

## 8. SCHEMATIC CIRCUIT DIAGRAM (GM-201)

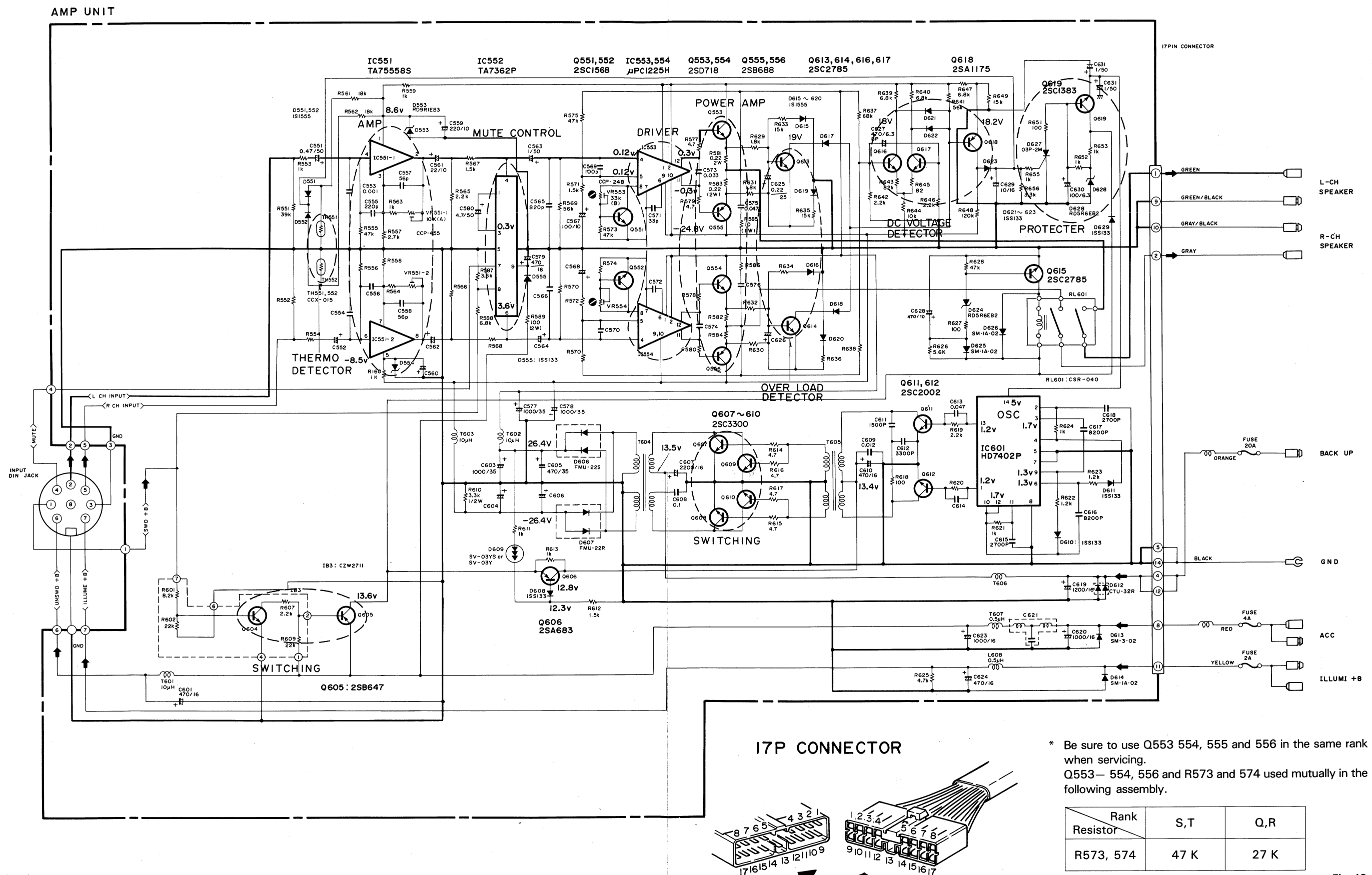


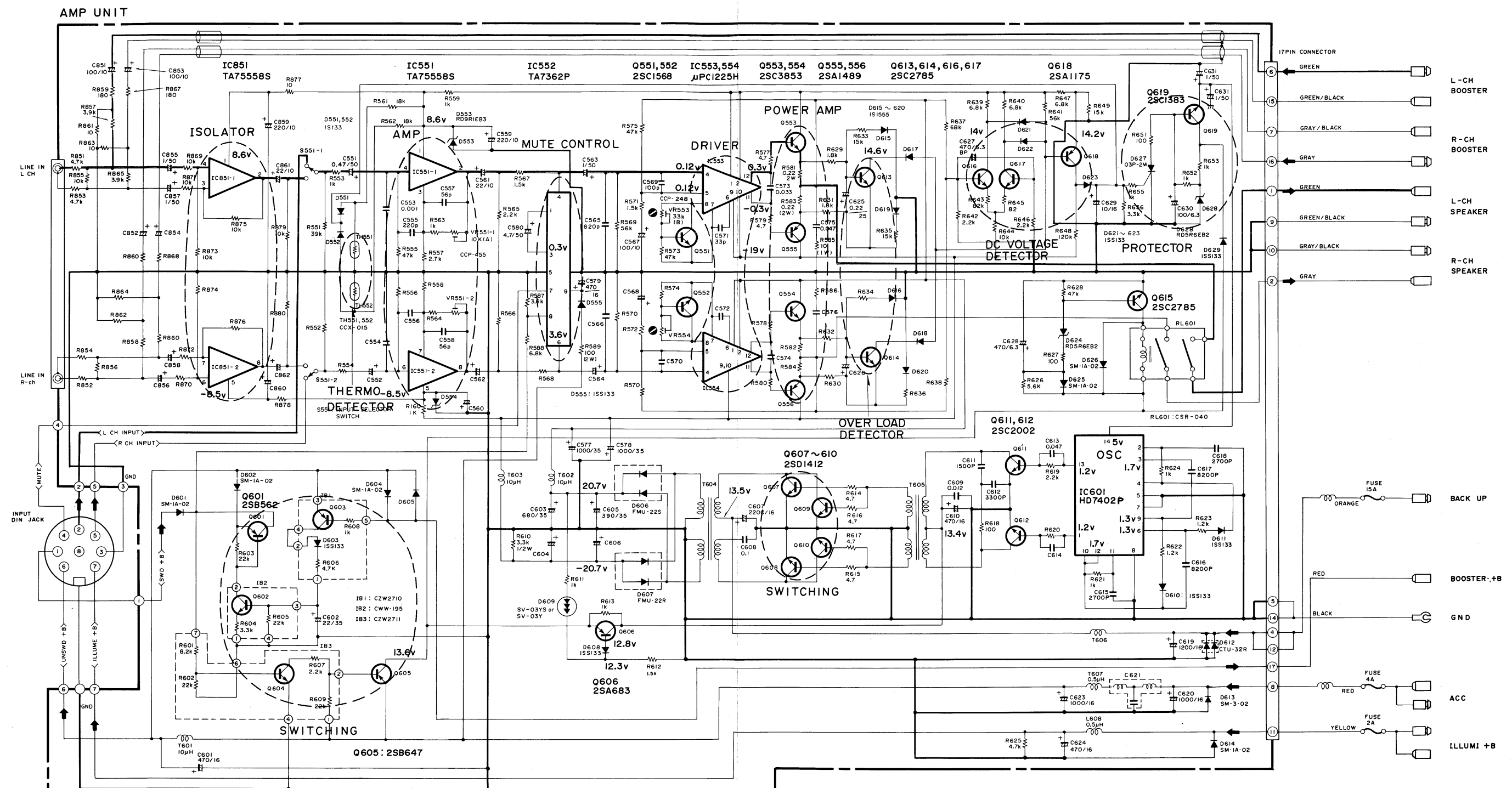
**Fig. 12**

## 5



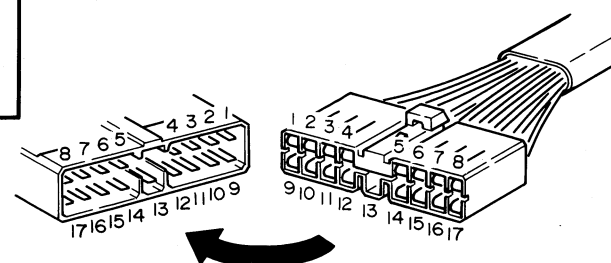
21

# 10. SCHEMATIC CIRCUIT DIAGRAM (GM-123)



Switch  
• AMP UNIT  
S551: INPUT SELECTOR SWITCH ..... LINE IN, BOOSTER—COMPONENT  
The underlined indicates the switch position.

17P CONNECTOR



\* Be sure to use Q553 554, 555 and 556 in the same rank when servicing.  
Q553—556 and R573 and 574 used mutually in the following assembly.

| Rank      | S,T  | Q,R  |
|-----------|------|------|
| Resistor  |      |      |
| R573, 574 | 47 K | 27 K |

Fig. 14

# 11. CONNECTION DIAGRAM (GM-123)

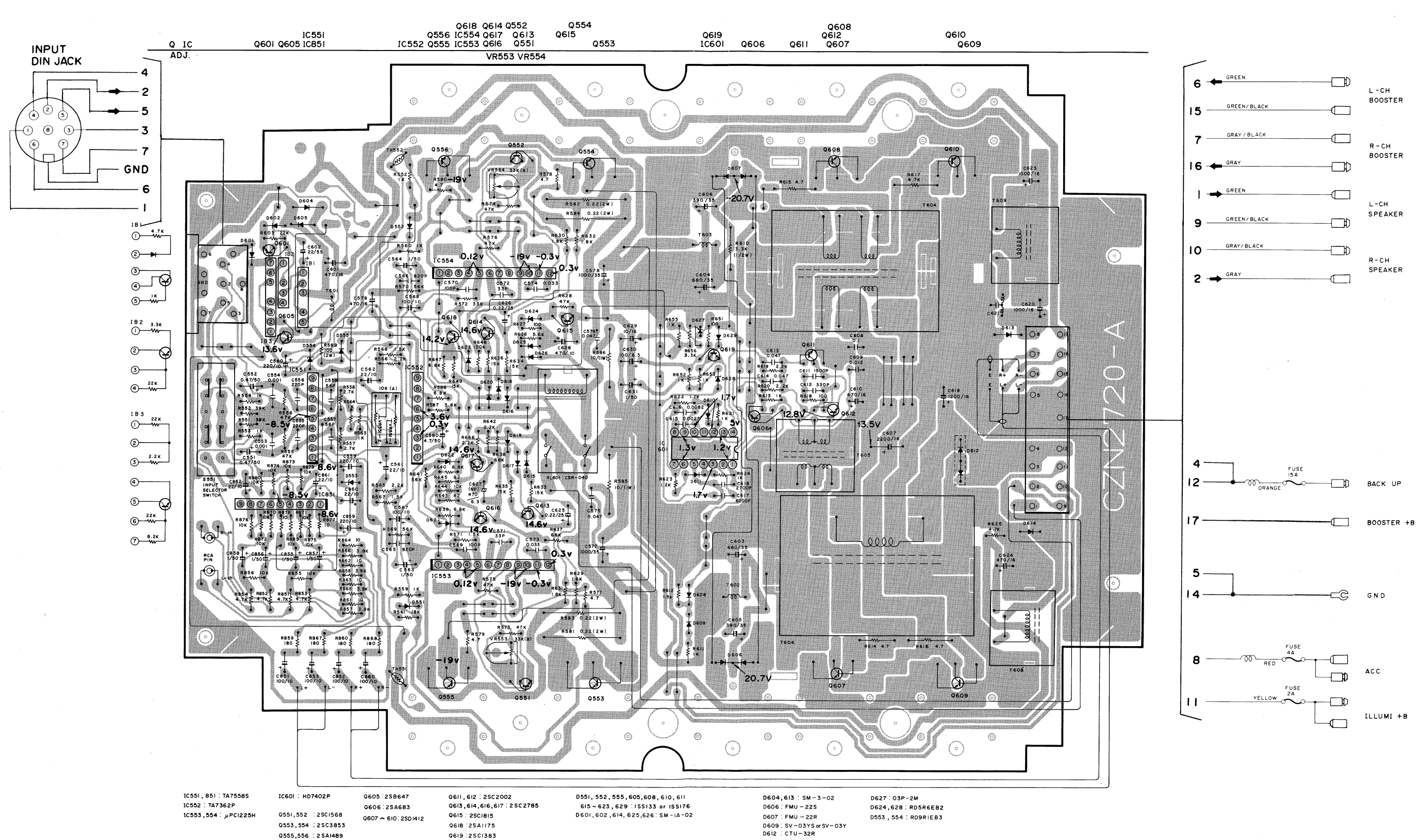


Fig. 15

## 6



6

5



6

# 14. EXPLODED VIEW

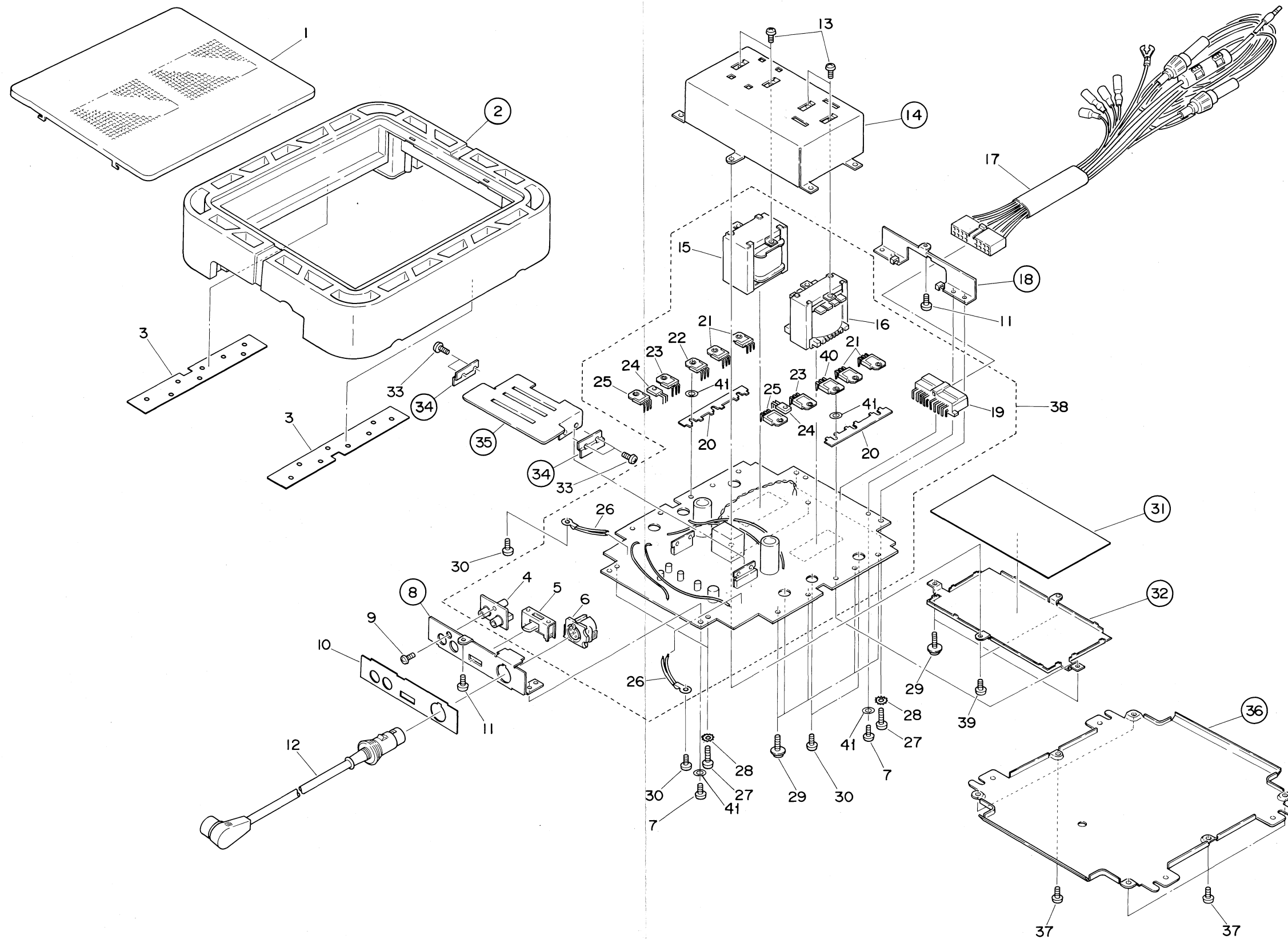


Fig. 18

## • Parts List

### NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks  
★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

| Mark | No. | Part No.     | Description                                 | Mark | No. | Part No.     | Description                  |
|------|-----|--------------|---------------------------------------------|------|-----|--------------|------------------------------|
|      | 1.  | CZN2718      | Case (GM-203)                               |      | 19. | CKS-548      | Connector                    |
|      |     | CZN2704      | Case (GM-201)                               |      | 20. | CZN2714      | Spacer (GM-123, GM-121)      |
|      |     | CZN2717      | Case (GM-123)                               | ★ ★  | 21. | 2SC3300      | Transistor (GM-203, GM-201)  |
|      |     | CZN2703      | Case (GM-121)                               | ★ ★  |     | 2SD1412      | Transistor (GM-123, GM-121)  |
|      | 2.  |              | Heat Sink (GM-203, GM-201)                  | ★    | 22. | CTU-32S      | Diode (GM-203, GM-201)       |
|      |     |              | Heat Sink (GM-123, GM-121)                  | ★    |     | FMU-22S      | Diode (GM-123, GM-121)       |
|      | 3.  | CZN2712      | Rubber                                      | ★ ★  | 23. | 2SD718       | Transistor (GM-203, GM-201)  |
|      | 4.  | CKB-013      | Pin Jack (2P) (GM-203, GM-123)              | ★ ★  |     | 2SC3853      | Transistor (GM-123, GM-121)  |
|      | 5.  | HSB-119      | Switch (INPUT SELECTOR)<br>(GM-203, GM-123) | ★ ★  | 24. | 2SC1568      | Transistor                   |
|      | 6.  | CKS-549      | DIN JACK                                    | ★ ★  | 25. | 2SB688       | Transistor (GM-203, GM-201)  |
|      | 7.  | CBA-124      | Screw                                       | ★ ★  |     | 2SA1489      | Transistor (GM-123, GM-121)  |
|      | 8.  |              | Bracket                                     | ★    | 26. | CCX-015      | Posistor                     |
|      | 9.  | CBZ30P050FMC | Screw                                       |      | 27. | BBZ30P080FMC | Screw                        |
|      | 10. | CZN2716      | Panel (GM-203, GM-123)                      |      | 28. | WH30FUC      | Washer                       |
|      |     | CZN2715      | Panel (GM-201, GM-121)                      |      | 29. | AMZ30P120FMC | Screw                        |
|      | 11. | BBZ30P080FZK | Screw                                       |      | 30. | BBZ30P080FMC | Screw                        |
|      | 12. | CZD2708      | DIN Cord (GM-201)                           |      | 31. |              | Insulator (GM-201, GM-121)   |
|      |     | CZD2707      | DIN Cord (GM-121)                           |      | 32. |              | Shield Case (GM-201, GM-121) |
|      | 13. | BMZ30P050FZK | Screw                                       |      | 33. | BMZ30P050FMC |                              |
|      | 14. |              | Shield Case (GM-203, GM-201)                |      | 34. |              | Holder                       |
|      |     |              | Shield Case (GM-123, GM-121)                |      | 35. |              | Heat Sink                    |
|      | 15. | CZT2704      | Coil (GM-203, GM-201)                       |      | 36. |              | Case                         |
|      |     | CZT2703      | Coil (GM-123, GM-121)                       |      | 37. | BBZ30P080FMC | Screw                        |
|      | 16. | CZT2702      | Transformer (GM-203, GM-201)                | ●    | 38. | CZW2706      | Amp Unit (GM-203)            |
|      |     | CZT2701      | Transformer (GM-123, GM-121)                | ●    |     | CZW2705      | Amp Unit (GM-201)            |
|      | 17. | CZD2706      | Cord (GM-203)                               | ●    |     | CZW2703      | Amp Unit (GM-123)            |
|      |     | CZD2705      | Cord (GM-201)                               | ●    |     | CZW2702      | Amp Unit (GM-121)            |
|      |     | CZD2703      | Cord (GM-123)                               |      | 39. | BMZ30P050FMC | Screw                        |
|      |     | CZD2702      | Cord (GM-121)                               | ★    | 40. | CTU-32R      | Diode (GM-203, GM-201)       |
|      | 18. |              | Bracket                                     | ★    |     | FMU-22R      | Diode (GM-123, GM-121)       |
|      |     |              |                                             |      | 41. | WB30FMC      | Washer                       |

15. ELECTRICAL PARTS LIST

NOTE:

When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω 56 × 10<sup>1</sup> 561 ..... RD1/4PS 5 6 1 J  
47kΩ 47 × 10<sup>3</sup> 473 ..... RD1/4PS 4 7 3 J  
0.5Ω 0R5 ..... RN2H 0 5 K  
1Ω 010 ..... RS1P 0 1 0 K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).  
5.62kΩ 562 × 10<sup>1</sup> ..... RN1/4SR 5 6 2 1 F

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.  
★ ★: GENERALLY MOVES FASTER THAN ★.  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.

Amp Unit (GM-203)

MISCELLANEOUS

| Mark | Symbol & Description                             | Part No.             | Mark      | Symbol & Description             | Part No.     |
|------|--------------------------------------------------|----------------------|-----------|----------------------------------|--------------|
| ★ ★  | IC551, 851                                       | TA75558S             |           | T604 Transformer                 | CZT2702      |
| ★ ★  | IC552                                            | TA7362P              |           | T605 Transformer                 | CTH-061      |
| ★ ★  | IC553, 554                                       | μPC1225H             |           | T606 Coil                        | CZT2704      |
| ★ ★  | IC601                                            | HD7402P              |           | T607, 608 Coil                   | CTF-002      |
| ★ ★  | Q551, 552                                        | 2SC1568              | ★ ★       | VR551 Semi-fixed, 10 kΩ (B)      | CCP-455      |
| ★ ★  | Q553, 554                                        | 2SD718               |           |                                  |              |
| ★ ★  | Q555, 556                                        | 2SB688               | ★ ★       | VR553, 554 Semi-fixed, 33 kΩ (B) | CCP-248      |
| ★ ★  | Q605                                             | 2SB647               |           | RL601 Relay                      | CSR-040      |
| ★ ★  | Q606                                             | 2SA683               | ★ ★       | S551 Switch                      | HSB-119      |
| ★ ★  | Q607-610                                         | 2SC3300              |           | (INPUT SELECTOR SWITCH)          |              |
| ★ ★  | Q611, 612                                        | 2SC2002              |           |                                  |              |
| ★ ★  | Q613, 614, 616, 617                              | 2SC2785              |           | IB1                              | CZW2710      |
| ★ ★  | Q618                                             | 2SA1175              |           | IB2                              | CWW-195      |
| ★ ★  | Q615                                             | 2SC1815              |           | IB3                              | CZW2711      |
| ★ ★  | Q619                                             | 2SC1383              |           |                                  |              |
| ★    | D551, 552, 555, 605, 608, 610, 611, 615-623, 629 | 1SS133 or 1SS176     | RESISTORS |                                  |              |
| ★    | D553, 554                                        | RD9R1EB2             | Mark      | Symbol & Description             | Part No.     |
| ★    | D601, 602, 614, 625, 626                         | SM-1A-02 or ERA15-02 |           | R581-584, 589                    | RN2P□□□J     |
| ★    | D604                                             | SM-3-02              |           | R585, 586                        | RN1P□□□J     |
| ★    | D606                                             | CTU-32S              |           | R610                             | RD1/2PS□□□J  |
| ★    | D607                                             | CTU-32R              |           | Other Resistors                  | RD1/4PS□□□JL |
| ★    | D609 Varistor Diode                              | SV-03Y or SV-03YS    |           |                                  |              |
| ★    | D612                                             | CTU-32R              |           |                                  |              |
| ★    | D624, 628                                        | RD5R6EB3             |           |                                  |              |
| ★    | D627 Thyristor                                   | 03P-2M               |           |                                  |              |
| ★    | TH551, 552 Posistor                              | CCX-015              |           |                                  |              |
|      | T601-603 Coil                                    | CZT2705              |           |                                  |              |

## CAPACITORS

| Mark | Symbol & Description        | Part No.     |
|------|-----------------------------|--------------|
|      | C551, 552                   | CEAR47M50L2  |
|      | C553, 554                   | CKDYB102K50  |
|      | C555, 556                   | CKDYB221K50  |
|      | C557, 558                   | CKDYB560K50  |
|      | C559, 560                   | CEA221M10L2  |
|      | C561, 562                   | CEA220M16L2  |
|      | C563, 564, 631, 855—858     | CEA010M50L2  |
|      | C565, 566                   | CKDYB821K50  |
|      | C567, 568                   | CEA101M50L2  |
|      | C569, 570                   | CKDYB101K50  |
|      | C571, 572                   | CKDYB330K50  |
|      | C573, 574                   | CQMA333K50   |
|      | C575, 576, 613, 614         | CQMA473K50   |
|      | C577, 578                   | CEA102M35L2  |
|      | C579, 601, 610, 624         | CEA471M16L2  |
|      | C580                        | CEA4R7M50L2  |
|      | C602                        | CEA220M35L2  |
|      | C603, 604 1000 $\mu$ F/35 V | CZC2702      |
|      | C605, 606 470 $\mu$ F/35 V  | CZC2704      |
|      | C607 2200 $\mu$ F/16 V      | CZC2705      |
|      | C608                        | CQMA104K50   |
|      | C609                        | CQMA123K50   |
|      | C611                        | CQMA152K50   |
|      | C612                        | CQMA332K50   |
|      | C615, 618                   | CQMA272K50   |
|      | C616, 617                   | CQMA822K50   |
|      | C619 1200 $\mu$ F/16 V      | CZC2706      |
|      | C620, 623                   | CEA102M16L2  |
|      | C621                        | CCG-105      |
|      | C624 470 $\mu$ F/16 V       | CZC2707      |
|      | C625, 626                   | CSZAR22M35   |
|      | C627                        | CEA471M6R3NP |
|      | C628                        | CEA471M10L2  |
|      | C629                        | CEA100M16L2  |
|      | C630, 851—854               | CEA101M10L2  |
|      | C859, 860                   | CEA221M16L2  |
|      | C861, 862                   | CEA220M10L2  |

\* Be sure to use Q553, 554 555 and 556 in the same rank when servicing.  
Q553—556 and R573 and 574 used mutually in the following assembly.

| Rank<br>Resistor | S,T  | Q,R  |
|------------------|------|------|
| R573, 574        | 47 K | 27 K |

## Amp Unit (GM-201)

### MISCELLANEOUS

| Mark | Symbol & Description                        | Part No.             |
|------|---------------------------------------------|----------------------|
| ★ ★  | IC551                                       | TA75558S             |
| ★ ★  | IC552                                       | TA7362P              |
| ★ ★  | IC553, 554                                  | $\mu$ PC1225H        |
| ★ ★  | IC601                                       | HD7402P              |
| ★ ★  | Q551, 552                                   | 2SC1568              |
| ★ ★  | Q553, 554                                   | 2SD718               |
| ★ ★  | Q555, 556                                   | 2SB688               |
| ★ ★  | Q605                                        | 2SB647               |
| ★ ★  | Q606                                        | 2SA683               |
| ★ ★  | Q607—610                                    | 2SC3300              |
| ★ ★  | Q611, 612                                   | 2SC2002              |
| ★ ★  | Q613, 614, 616, 617                         | 2SC2785              |
| ★ ★  | Q615                                        | 2SC1815              |
| ★ ★  | Q618                                        | 2SA1175              |
| ★ ★  | Q619                                        | 2SC1383              |
| ★    | D551, 552, 555, 608, 610, 611, 615—623, 629 | 1SS133 or 1SS176     |
| ★    | D553, 554                                   | RD9R1EB2             |
| ★    | D604                                        | SM-3-02              |
| ★    | D606                                        | CTU-32S              |
| ★    | D607                                        | CTU-32R              |
| ★    | D609 Varistor Diode                         | SV-03Y or SV-03YS    |
| ★    | D612                                        | CTU-32R              |
| ★    | D613                                        | SM-3-02              |
| ★    | D614, 625, 626                              | SM-1A-02 or ERA15-02 |
| ★    | D624, 628                                   | RD5R6EB3             |
| ★    | D627 Thyristor                              | 03P-2M               |
| ★    | TH551, 552 Posistor                         | CCX-015              |
|      | T601—603 Coil                               | CZT2705              |
|      | T604 Transformer                            | CZT2702              |
|      | T605 Transformer                            | CTH-061              |
|      | T606 Coil                                   | CZT2704              |
|      | T607, 608 Coil                              | CTF-002              |
| ★ ★  | VR551 Semi-fixed, 10 k $\Omega$ (B)         | CCP-455              |
| ★ ★  | VR553, 554 Semi-fixed, 33 k $\Omega$ (B)    | CCP-248              |
|      | RL601 Relay                                 | CSR-040              |
|      | IB3                                         | CZW2711              |

### RESISTORS

| Mark | Symbol & Description | Part No.     |
|------|----------------------|--------------|
|      | R581—584, 589        | RN2P□□□J     |
|      | R585, 586            | RN1P□□□J     |
|      | R610                 | RD1/2PS□□□J  |
|      | Other Resistors      | RD1/4PS□□□JL |

# CAPACITORS

| Mark                | Symbol & Description | Part No.     |
|---------------------|----------------------|--------------|
| C551, 552           |                      | CEAR47M50L2  |
| C553, 554           |                      | CKDYB102K50  |
| C555, 556           |                      | CKDYB221K50  |
| C557, 558           |                      | CKDYB560K50  |
| C559, 560           |                      | CEA221M10L2  |
| C561, 562           |                      | CEA220M16L2  |
| C563, 564, 631      |                      | CEA010M50L2  |
| C565, 566           |                      | CKDYB821K50  |
| C567, 568           |                      | CEA101M10L2  |
| C569, 570           |                      | CKDYB101K50  |
| C571, 572           |                      | CKDYB330K50  |
| C573, 574           |                      | CQMA333K50   |
| C575, 576, 613, 614 |                      | CQMA473K50   |
| C577, 578           |                      | CEA102M35L2  |
| C579, 601, 610, 624 |                      | CEA471M16L2  |
| C580                |                      | CEA4R7M50L2  |
| C603, 604           | 1000 $\mu$ F/35 V    | CZC2702      |
| C605, 606           | 470 $\mu$ F/35 V     | CZC2704      |
| C607                | 2200 $\mu$ F/16 V    | CZC2705      |
| C608                |                      | CQMA104K50   |
| C609                |                      | CQMA123K50   |
| C611                |                      | CQMA152K50   |
| C612                |                      | CQMA332K50   |
| C615, 618           |                      | CQMA272K50   |
| C616, 617           |                      | CQMA822K50   |
| C619                | 1200 $\mu$ F/16 V    | CZC2706      |
| C620, 623           |                      | CEA102M16L2  |
| C621                |                      | CCG-105      |
| C624                | 470 $\mu$ F/16 V     | CZC2707      |
| C625, 626           |                      | CSZAR22M35   |
| C627                |                      | CEA471M6R3NP |
| C628                |                      | CEA471M10L2  |
| C629                |                      | CEA100M16L2  |
| C630                |                      | CEA101M10L2  |

\* Be sure to use Q553, 554, 555 and 556 in the same rank when servicing.  
Q553—556 and R573 and 574 used mutually in the following assembly.

| Rank<br>Resistor | S,T  | Q,R  |
|------------------|------|------|
| R573, 574        | 47 K | 27 K |

# Amp Unit (GM-123)

## MISCELLANEOUS

| Mark | Symbol & Description                      | Part No.                           |
|------|-------------------------------------------|------------------------------------|
| ★ ★  | IC551, 851                                | TA75558S                           |
| ★ ★  | IC552                                     | TA7362P                            |
| ★ ★  | IC553, 554                                | $\mu$ PC1225H                      |
| ★ ★  | IC601                                     | HD7402                             |
| ★ ★  | Q551, 552                                 | 2SC1568                            |
| ★ ★  | Q553, 554                                 | 2SC3853                            |
| ★ ★  | Q555, 556                                 | 2SA1489                            |
| ★ ★  | Q605                                      | 2SB647                             |
| ★ ★  | Q607—610                                  | 2SD1412                            |
| ★ ★  | Q661, 612                                 | 2SC2002                            |
| ★ ★  | Q613, 614, 616, 617                       | 2SC2785                            |
| ★ ★  | Q618                                      | 2SA1175                            |
| ★ ★  | Q615                                      | 2SC1815                            |
| ★ ★  | Q619                                      | 2SC1383                            |
| ★    | D551, 552, 555, 605, 608, 610,            | 1SS133 or                          |
|      | 611, 615—623, 629                         | 1SS176                             |
| ★    | D553, 554                                 | RD9R1EB2                           |
| ★    | D601, 602, 614, 625, 629                  | SM-1A-02 or<br>ERA15-02<br>SM-3-02 |
| ★    | D604                                      |                                    |
| ★    | D606                                      | FMU-22S                            |
| ★    | D607                                      | FMU-22R                            |
| ★    | D609 Varistor Diode                       | SV-03Y or<br>SV-03YS               |
| ★    | D612                                      | CTU-22R                            |
| ★    | D624, 628                                 | RD5R6EB3                           |
| ★    | D627 Thyristor                            | 03P-2M                             |
| ★    | TH551, 552 Posistor                       | CCX-015                            |
|      | T601—603 Coil                             | CZT2705                            |
|      | T604 Transformer                          | CZT2701                            |
|      | T605 Transformer                          | CTH-061                            |
|      | T606 Coil                                 | CZT2703                            |
|      | T607, 608 Coil                            | CTF-002                            |
| ★ ★  | VR551 Semi-fixed, 10 k $\Omega$ (B)       | CCP-455                            |
| ★ ★  | VR553, 554 Semi-fixed, 33 k $\Omega$ (B)  | CCP-248                            |
|      | RL601 Relay                               | CSR-040                            |
| ★ ★  | S551 Switch<br>(INPUT SELECTOR<br>SWITCH) | HSH-119                            |
|      | IB1                                       | CZW2710                            |
|      | IB2                                       | CWW-195                            |
|      | IB3                                       | CZW2711                            |

## RESISTORS

| Mark | Symbol & Description | Part No.     |
|------|----------------------|--------------|
|      | R581—584, 589        | RN2P□□□J     |
|      | R585, 586            | RN1P□□□J     |
|      | R610                 | RD1/2PS□□□J  |
|      | Other Resistors      | RD1/4PS□□□JL |

## CAPACITORS

| Mark | Symbol & Description    | Part No.     |
|------|-------------------------|--------------|
|      | C551, 552               | CEAR47M50L2  |
|      | C553, 554               | CKDYB221K50  |
|      | C555, 556               | CKDYB560K50  |
|      | C557, 558               | CKDYB560K50  |
|      | C559, 560, C859, 860    | CEA221M10L2  |
|      | C561, 562               | CEA220M16L2  |
|      | C563, 564, 631, 855—858 | CEA010M50L2  |
|      | C565, 566               | CKDYB821K50  |
|      | C567, 568               | CEA101M50L2  |
|      | C569, 570               | CKDYB101K50  |
|      | C571, 572               | CKDYB330K50  |
|      | C573, 574               | CQMA333K50   |
|      | C575, 576, 613, 614     | CQMA473K50   |
|      | C577, 578               | CEA102M35L2  |
|      | C579, 601, 610, 624     | CEA471M16L2  |
|      | C580                    | CEA4R7M50L2  |
|      | C602, 603, 604, 680     | CEA220M35L2  |
|      | μF/35 V                 | CZC2701      |
|      | C605, 606 390 μF/35 V   | CZC2703      |
|      | C607 2200 μF/16 V       | CZC2705      |
|      | C608                    | CQMA104K50   |
|      | C609                    | CQMA123K50   |
|      | C611                    | CQMA152K50   |
|      | C612                    | CQMA332K50   |
|      | C615, 618               | CQMA272K50   |
|      | C616, 617               | CQMA822K50   |
|      | C619 1200 μF/16 V       | CZC2706      |
|      | C620, 623               | CEA102M16L2  |
|      | C621                    | CCG-105      |
|      | C624 470 μF/16 V        | CZC2707      |
|      | C625, 626               | CSZAR22M35   |
|      | C627                    | CEA471M6R3NP |
|      | C628                    | CEA471M10L2  |
|      | C629                    | CEA100M16L2  |
|      | C630, 851—854           | CEA101M10L2  |
|      | C861, 862               | CEA220M10L2  |

\* Be sure to use Q553, 554, 555 and 556 in the same rank when servicing.  
Q553—556 and R573 and 574 used mutually in the following assembly.

| Rank<br>Resistor | S,T  | Q,R  |
|------------------|------|------|
| R573, 574        | 47 K | 27 K |

## Amp Unit (GM-121)

### MISCELLANEOUS

| Mark | Symbol & Description                   | Part No.             |
|------|----------------------------------------|----------------------|
| ★ ★  | IC551                                  | TA75558S             |
| ★ ★  | IC552                                  | TA7362P              |
| ★ ★  | IC553, 554                             | μPC1225H             |
| ★ ★  | IC601                                  | HD7402P              |
| ★ ★  | Q551, 552                              | 2SC1568              |
| ★ ★  | Q553, 554                              | 2SC3853              |
| ★ ★  | Q555, 556                              | 2SA1489              |
| ★ ★  | Q605                                   | 2SB647               |
| ★ ★  | Q606                                   | 2SA683               |
| ★ ★  | Q607—610                               | 2SD1412              |
| ★ ★  | Q611, 612                              | 2SC2002              |
| ★ ★  | Q613, 614, 616, 617                    | 2SC2785              |
| ★ ★  | Q615                                   | 2SC1815              |
| ★ ★  | Q618                                   | 2SA1175              |
| ★ ★  | Q619                                   | 2SC1383              |
| ★    | D551, 552, 555, 608, 611, 615—623, 629 | 1SS133 or 1SS176     |
| ★    | D553, 554                              | RD9R1EB2             |
| ★    | D604                                   | SM-3-02              |
| ★    | D606                                   | FMU-22S              |
| ★    | D607                                   | FMU-22R              |
| ★    | 609 Varistor Doide                     | SV-03Y or SV-03YS    |
| ★    | D612                                   | CTU-32R              |
| ★    | D614, 625, 626                         | SM-1A-02 or ERA15-02 |
| ★    | D624, 628                              | RD5R6EB3             |
| ★    | D627 Thyristor                         | 03P-2M               |
| ★    | TH551, 552 Posistor                    | CCX-015              |
|      | T601—603 Coil                          | CZT2705              |
|      | T604 Transformer                       | CZT2701              |
|      | T605 Transformer                       | CTH-061              |
|      | T606 Coil                              | CZT2703              |
|      | T607, 608 Coil                         | CTF-002              |
| ★ ★  | VR551, Semi-fixed, 10 kΩ(B)            | CCP-455              |
| ★ ★  | VR553, 554 Semi-fixed, 33 kΩ(B)        | CCP-248              |
|      | RL601 Relay                            | CSR-040              |
|      | IB3                                    | CZW2711              |

### RESISTORS

| Mark | Symbol & Description | Part No.     |
|------|----------------------|--------------|
|      | R581—584, 589        | RN2P□□□J     |
|      | R585, 586            | RN1P□□□J     |
|      | R610                 | RD1/2PS□□□J  |
|      | Other Resistors      | RD1/4PS□□□JL |

CAPACITORS

| Mark                | Symbol & Description | Part No.     |
|---------------------|----------------------|--------------|
| C551, 552           |                      | CEAR47M50L2  |
| C553, 554           |                      | CKDYB102K50  |
| C555, 556           |                      | CKDYB221K50  |
| C557, 558           |                      | CKDYB560K50  |
| C559, 560           |                      | CEA221M10L2  |
| C561, 562           |                      | CEA220M16L2  |
| C563, 564, 631      |                      | CEA010M50L2  |
| C565, 566           |                      | CKDYB821K50  |
| C567, 568           |                      | CEA101M10L2  |
| C569, 570           |                      | CKDYB101K50  |
| C571, 572           |                      | CKDYB330K50  |
| C573, 574           |                      | CQMA333K50   |
| C575, 576, 613, 614 |                      | CQMA473K50   |
| C577, 578           |                      | CEA102M35L2  |
| C579, 601, 610, 624 |                      | CEA471M16L2  |
| C580                |                      | CEA4R7M50L2  |
| C603, 604           | 680µF/35 V           | CZC2701      |
| C605, 606           | 390µF/35 V           | CZC2703      |
| C607                | 2200µF/16 V          | CZC2705      |
| C608                |                      | CQMA104K50   |
| C609                |                      | CQMA123K50   |
| C611                |                      | CQMA152K50   |
| C612                |                      | CQMA332K50   |
| C615, 618           |                      | CQMA272K50   |
| C616, 617           |                      | CQMA822K50   |
| C619                | 1200µF/16 V          | CZC2706      |
| C620, 623           |                      | CEA102M16L2  |
| C621                |                      | CCG-105      |
| C624                | 470µF/16 V           | CZC2707      |
| C625, 626           |                      | CSZAR22M35   |
| C627                |                      | CEA471M6R3NP |
| C628                |                      | CEA471M10L2  |
| C629                |                      | CEA100M16L2  |
| C630                |                      | CEA101M10L2  |

\* Be sure to use Q553, 554 555 and 556 in the same rank when servicing.  
Q553—556 and R573 and 574 used mutually in the following assembly.

| Rank<br>Resistor | S,T  | Q,R  |
|------------------|------|------|
| R573, 574        | 47 K | 27 K |

## 16. PACKING METHOD

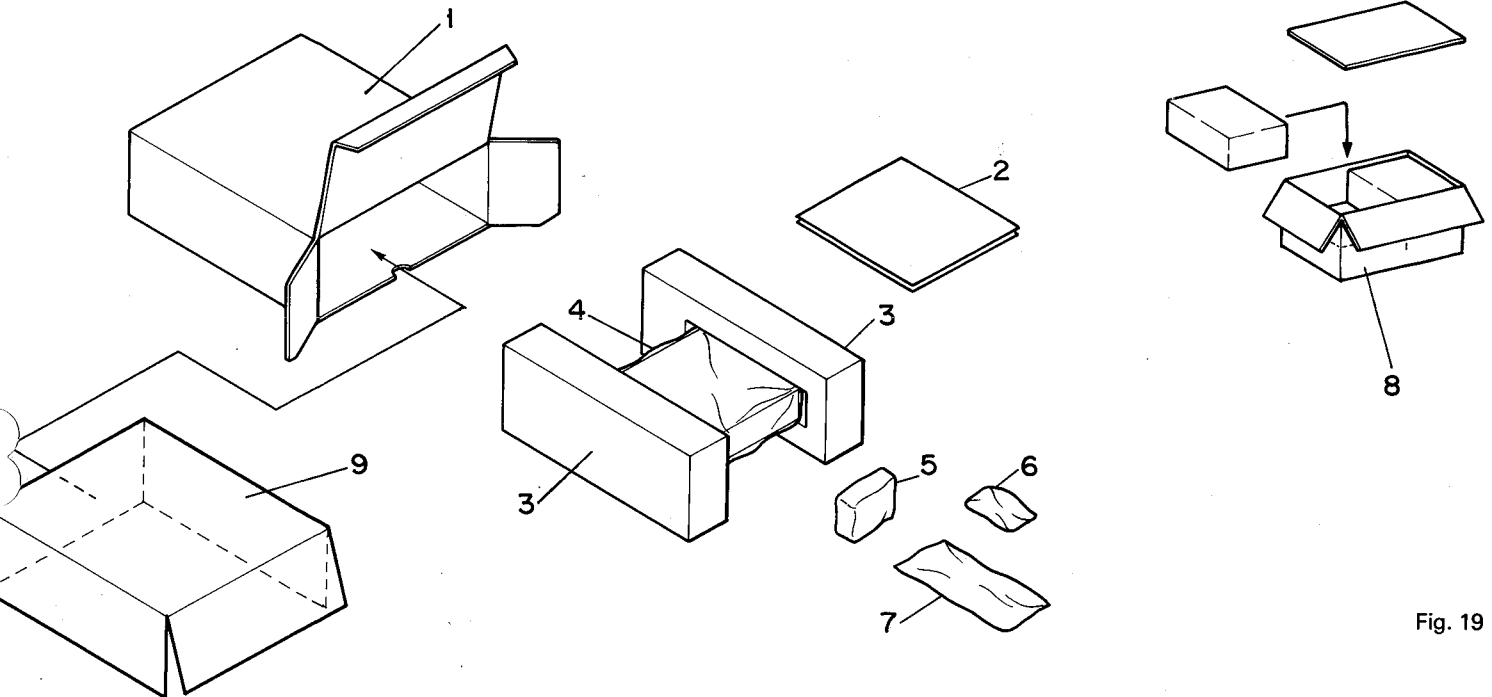


Fig. 19

### • Parts List

| Mark | No.  | Part No.     | Description                              |
|------|------|--------------|------------------------------------------|
|      | 1.   | CZN2714      | Carton (GM-203/US)                       |
|      |      | CZH2713      | Carton (GM-201/EW)                       |
|      |      | CZH2710      | Carton (GM-123/US)                       |
|      |      | CZH2709      | Carton (GM-123/CA)                       |
|      |      | CZH2711      | Carton (GM-123/ES)                       |
|      |      | CZH2708      | Carton (GM-121/EW)                       |
|      | 2.   | CZR2707      | Owner's Manual (GM-203/US)               |
|      |      | CZR2706      | Owner's Manual (GM-201/EW)               |
|      |      | CZR2703      | Owner's Manual (GM-123/US, CA)           |
|      |      | CZR2704      | Owner's Manual (GM-123/CA)               |
|      |      | CZR2705      | Owner's Manual (GM-123/ES)               |
|      |      | CZR2702      | Owner's Manual (GM-121/EW)               |
|      | 3.   | CZH2717      | Styrofoam (GM-203/US, GM-201/EW)         |
|      |      | CZH2716      | Styrofoam (GM-121/US, CA, ES, GM-121/EW) |
|      | 4.   | CZH2718      | Cover                                    |
|      | 5.   | CZE2701      | Accessory Kit                            |
|      | 5-1. | PNZ50P160FMC | Screw                                    |

| Mark | No.  | Part No. | Description                          |
|------|------|----------|--------------------------------------|
|      | 5-2. | WB45FMC  | Washer                               |
|      | 5-3. |          | Pin                                  |
|      | 6.   | CZD2707  | DIN Cord (GM-121/EW)                 |
|      | 7.   | CZD2710  | Cord Assy (GM-203/US)                |
|      |      | CZD2711  | Cord Assy (GM-201/EW)                |
|      |      | CZD2703  | Cord (GM-123/US, CA, ES)             |
|      |      | CZD2702  | Cord (GM-121/EW)                     |
|      | 7-1. | CZD2706  | Cord (GM-203/US)                     |
|      |      | CZD2705  | Cord (GM-201/EW)                     |
|      | 7-2. | CZD2708  | DIN Cord (GM-201/EW)                 |
|      | 7-3. | CZD2712  | Cord (GM-203/US, GM-201/EW)          |
|      | 7-4. | CDF-987  | Cord (GM-203/US)                     |
|      | 7-5. | CDF-988  | Cord (GM-203/US)                     |
|      | 7-6. | CDK-007  | Cord (GM-203/US)                     |
|      | 8.   | CZH2706  | Contain Box (GM-203/US)              |
|      |      | CZH2703  | Contain Box (GM-123/US)              |
|      | 9.   | CHW1020  | Reinforcement Paper (GM-203, GM-201) |
|      |      | CHW1019  | Reinforcement Paper (GM-123, GM-121) |

